FIG. 1

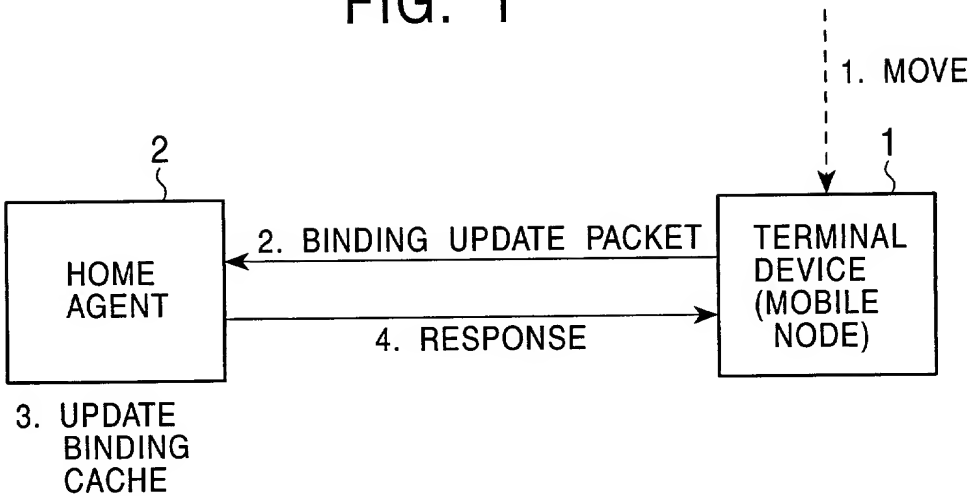

1. MOVE
2
1
HOME AGENT
2. BINDING UPDATE PACKET
4. RESPONSE
TERMINAL DEVICE (MOBILE NODE)
3. UPDATE BINDING CACHE

FIG. 2

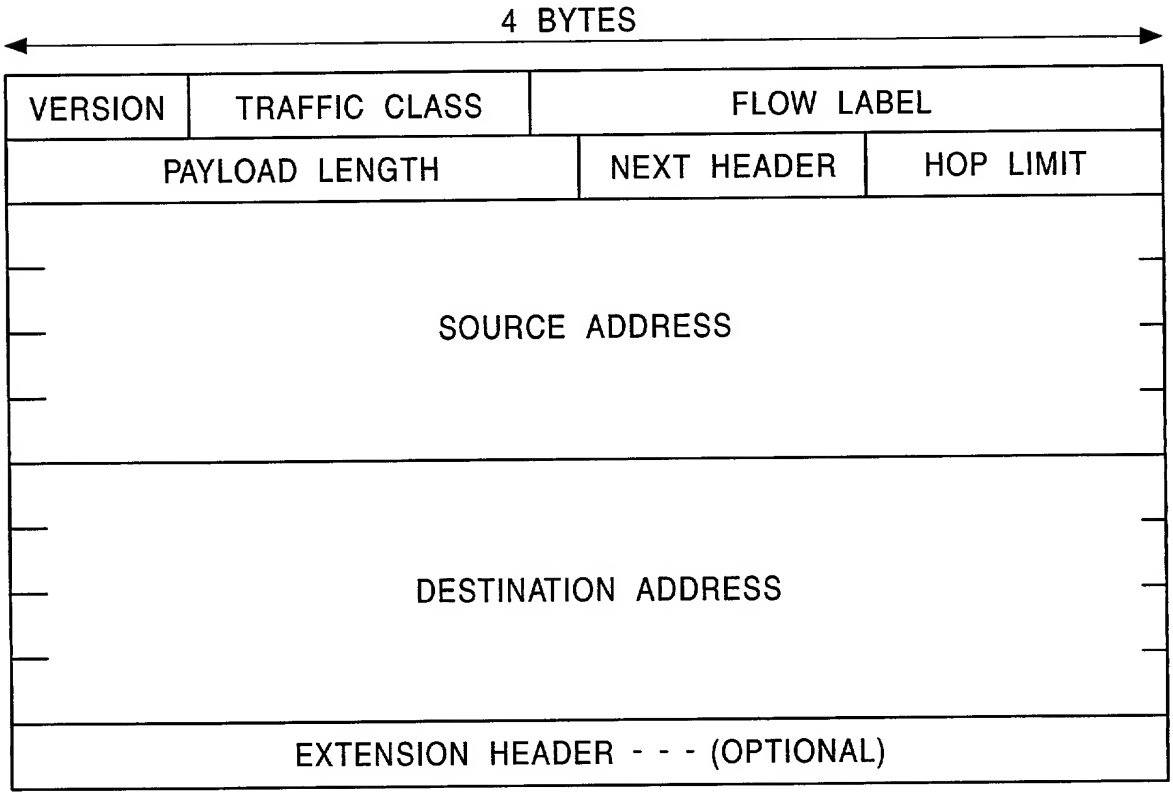

4 BYTES
VERSION
TRAFFIC CLASS
FLOW LABEL
PAYLOAD LENGTH
NEXT HEADER
HOP LIMIT
SOURCE ADDRESS
DESTINATION ADDRESS
EXTENSION HEADER - - - (OPTIONAL)

FIG. 3

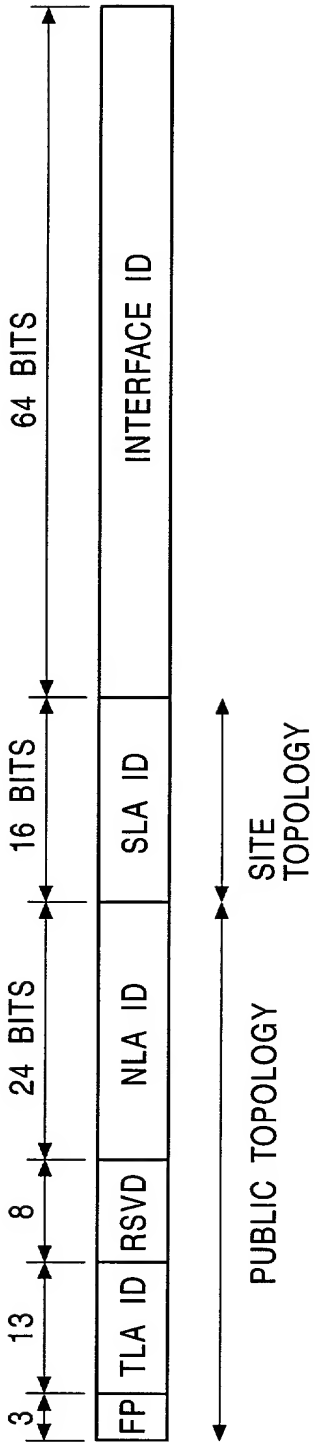

3
13
8
24 BITS
16 BITS
64 BITS
FP
TLA ID
RSVD
NLA ID
SLA ID
INTERFACE ID
PUBLIC TOPOLOGY
SITE TOPOLOGY

FIG. 4

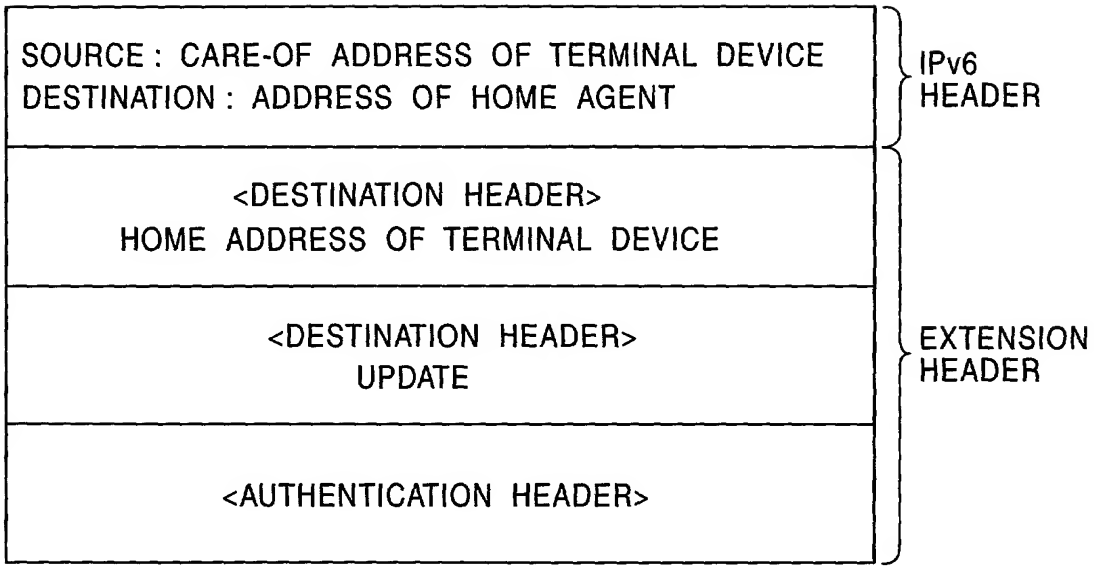

SOURCE : CARE-OF ADDRESS OF TERMINAL DEVICE
DESTINATION : ADDRESS OF HOME AGENT
IPv6 HEADER
<DESTINATION HEADER>
HOME ADDRESS OF TERMINAL DEVICE
<DESTINATION HEADER>
UPDATE
<AUTHENTICATION HEADER>
EXTENSION HEADER

FIG. 5

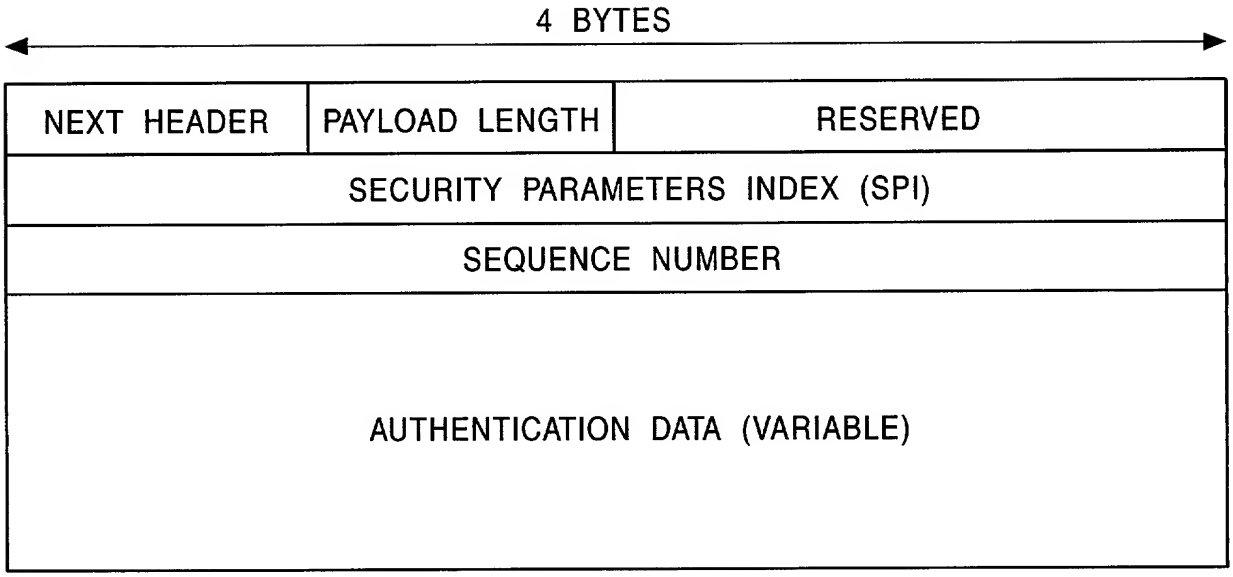

4 BYTES
NEXT HEADER
PAYLOAD LENGTH
RESERVED
SECURITY PARAMETERS INDEX (SPI)
SEQUENCE NUMBER
AUTHENTICATION DATA (VARIABLE)

FIG. 6

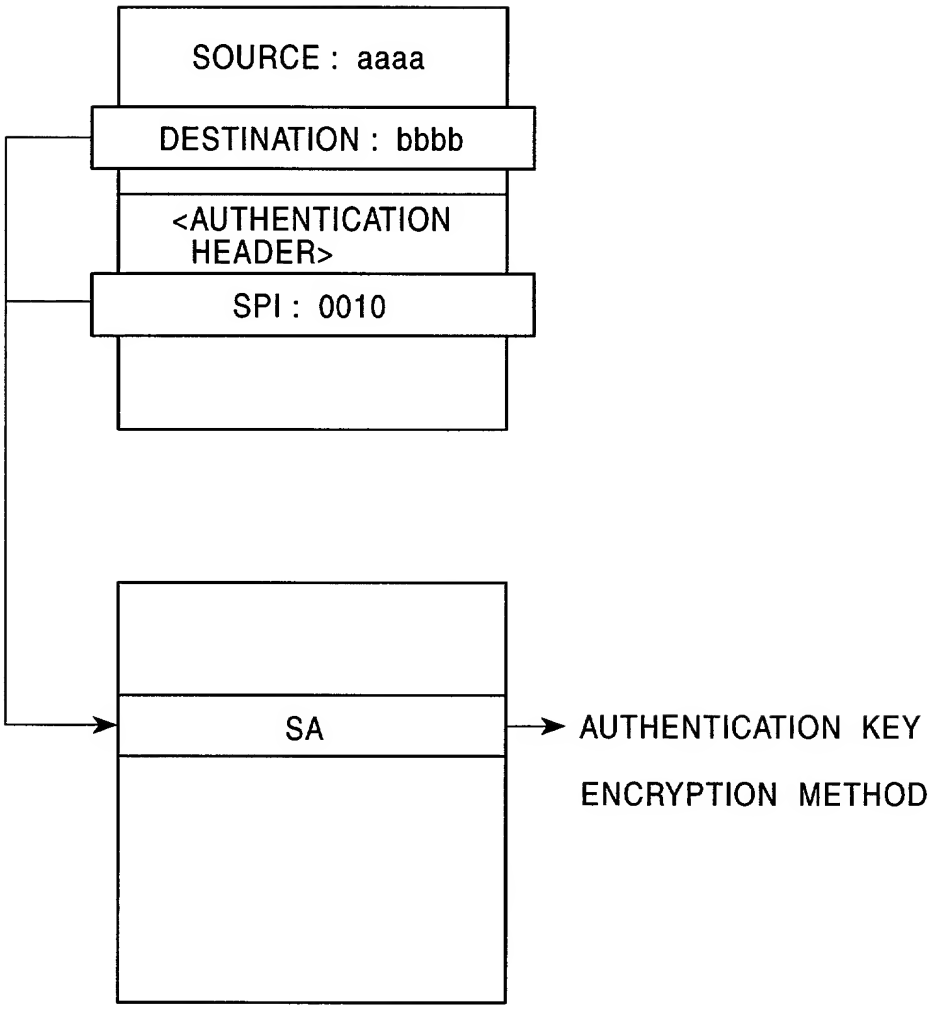

SOURCE : aaaa
DESTINATION : bbbb
<AUTHENTICATION HEADER>
SPI : 0010
SA
AUTHENTICATION KEY
ENCRYPTION METHOD

FIG. 7

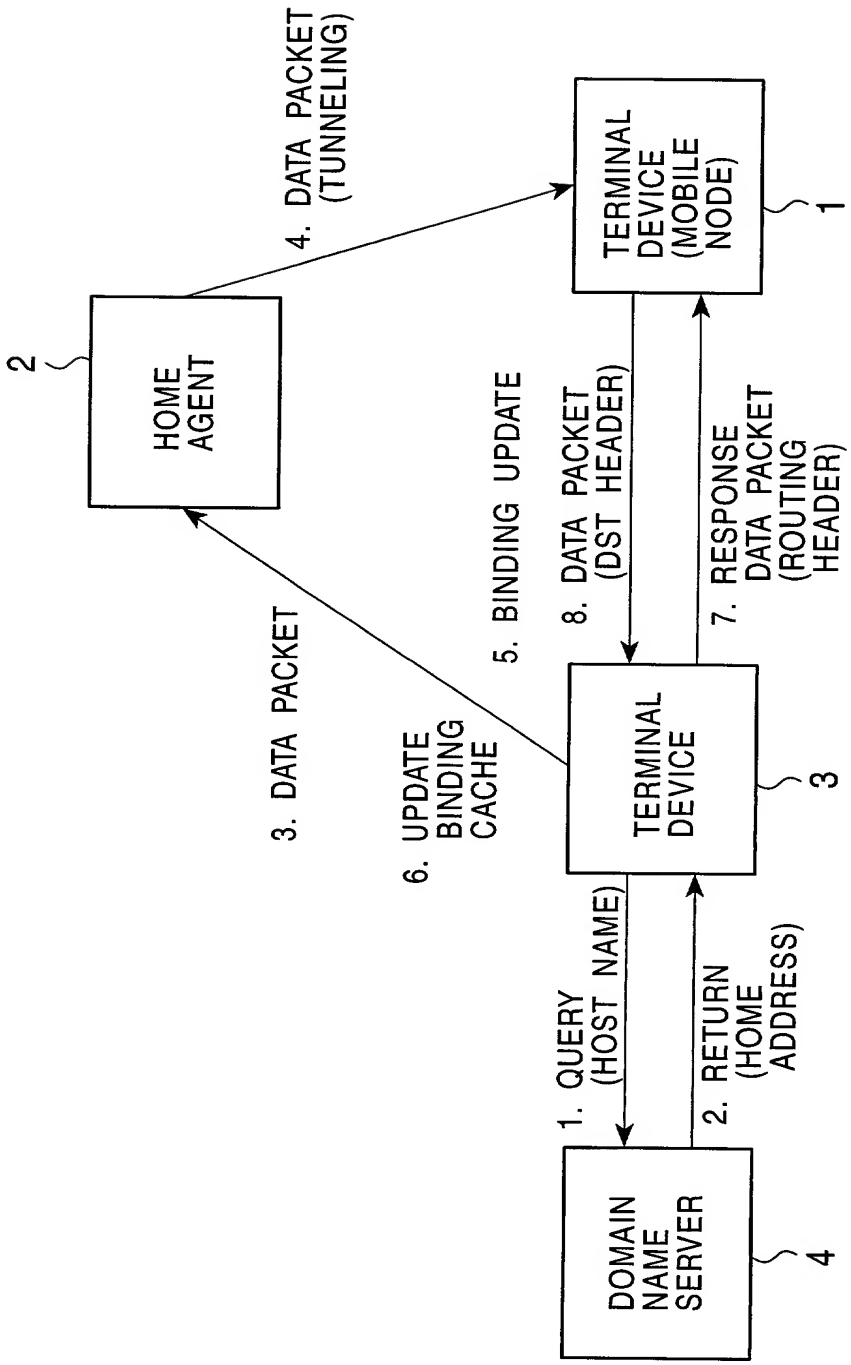

HOME AGENT
2
TERMINAL DEVICE (MOBILE NODE)
1
TERMINAL DEVICE
3
DOMAIN NAME SERVER
4
1. QUERY (HOST NAME)
2. RETURN (HOME ADDRESS)
3. DATA PACKET
4. DATA PACKET (TUNNELING)
5. BINDING UPDATE
6. UPDATE BINDING CACHE
7. RESPONSE DATA PACKET (ROUTING HEADER)
8. DATA PACKET (DST HEADER)

FIG. 8

HOST NAME	HOME ADDRESS
aaaa	XXXX
bbbb	YYYY
cccc	ZZZZ
⋮	⋮

FIG. 9

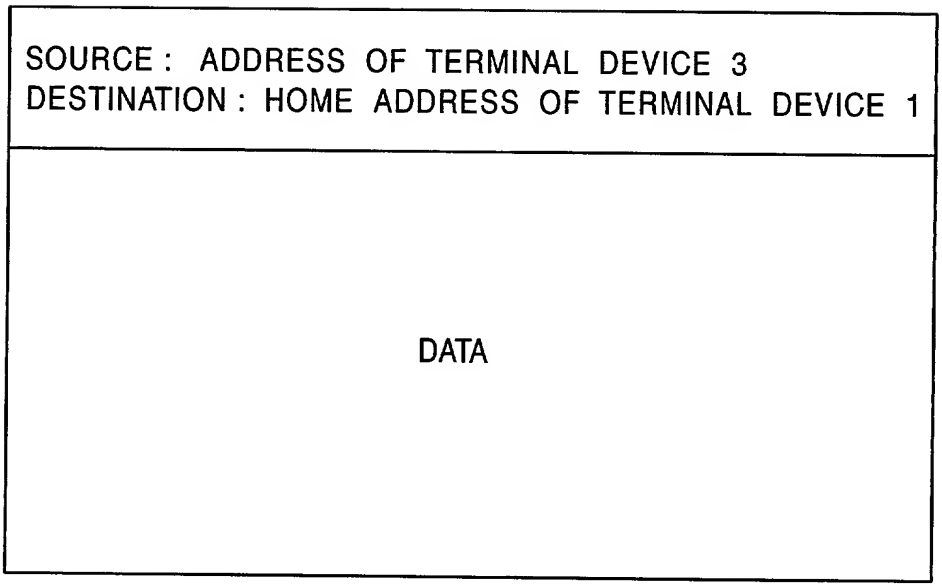


FIG. 10

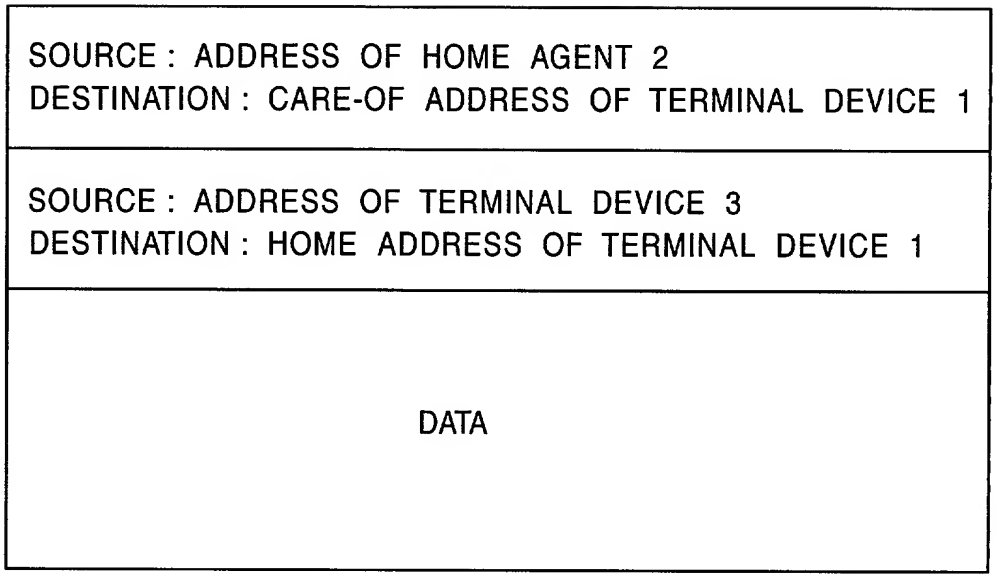

SOURCE : ADDRESS OF HOME AGENT 2
DESTINATION : CARE-OF ADDRESS OF TERMINAL DEVICE 1
SOURCE : ADDRESS OF TERMINAL DEVICE 3
DESTINATION : HOME ADDRESS OF TERMINAL DEVICE 1
DATA

FIG. 11

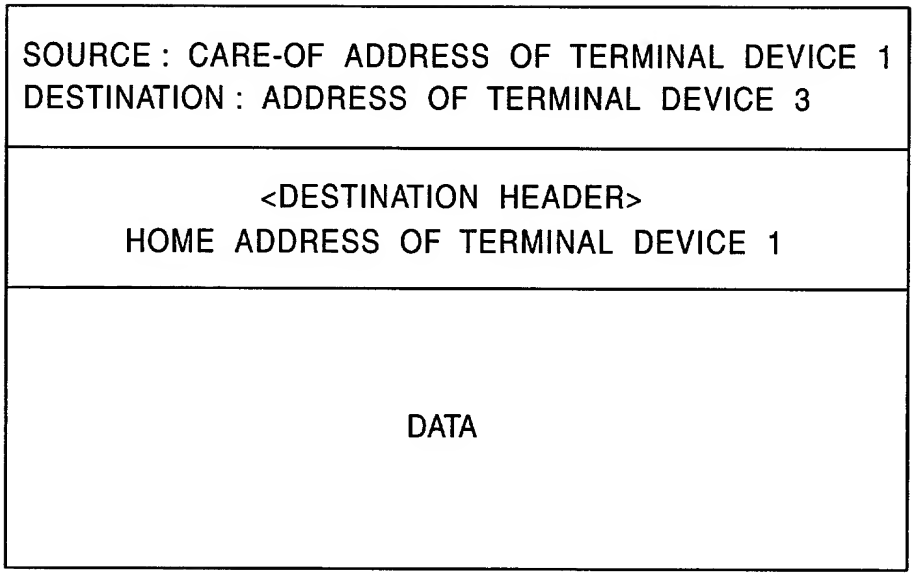

SOURCE : CARE-OF ADDRESS OF TERMINAL DEVICE 1
DESTINATION : ADDRESS OF TERMINAL DEVICE 3
<DESTINATION HEADER>
HOME ADDRESS OF TERMINAL DEVICE 1
DATA

FIG. 12

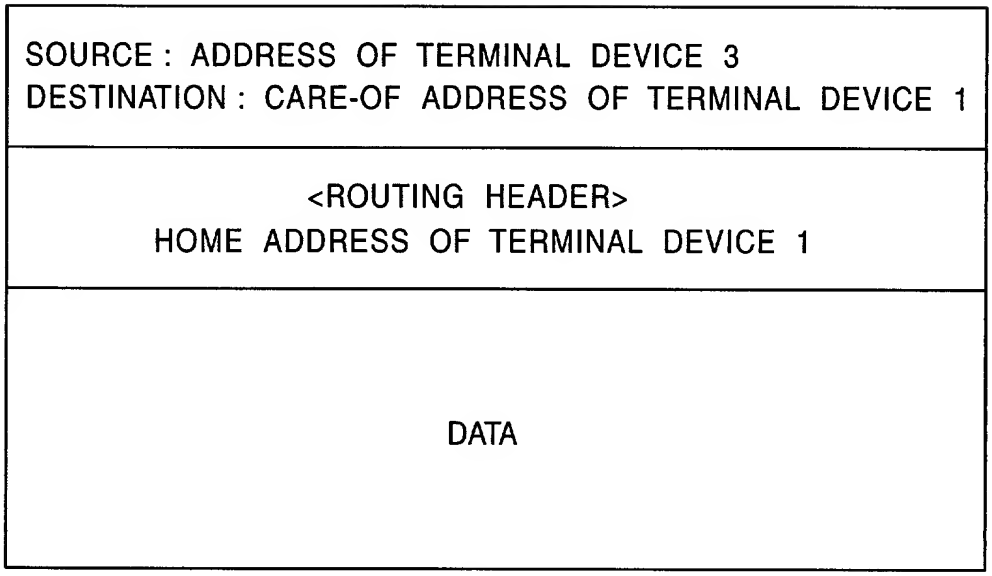

SOURCE : ADDRESS OF TERMINAL DEVICE 3
DESTINATION : CARE-OF ADDRESS OF TERMINAL DEVICE 1
<ROUTING HEADER>
HOME ADDRESS OF TERMINAL DEVICE 1
DATA

FIG. 13

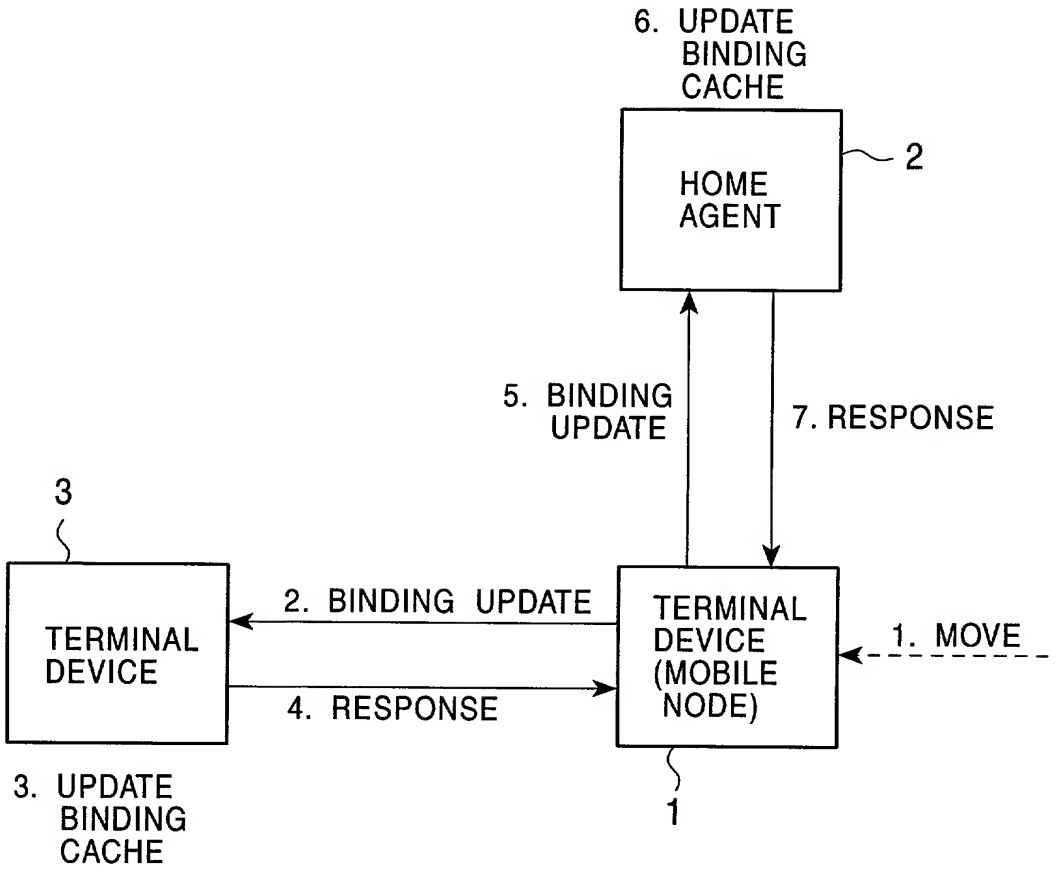

6. UPDATE BINDING CACHE
HOME AGENT
2
5. BINDING UPDATE
7. RESPONSE
3
TERMINAL DEVICE
2. BINDING UPDATE
4. RESPONSE
TERMINAL DEVICE (MOBILE NODE)
1. MOVE
3. UPDATE BINDING CACHE
1

FIG. 14

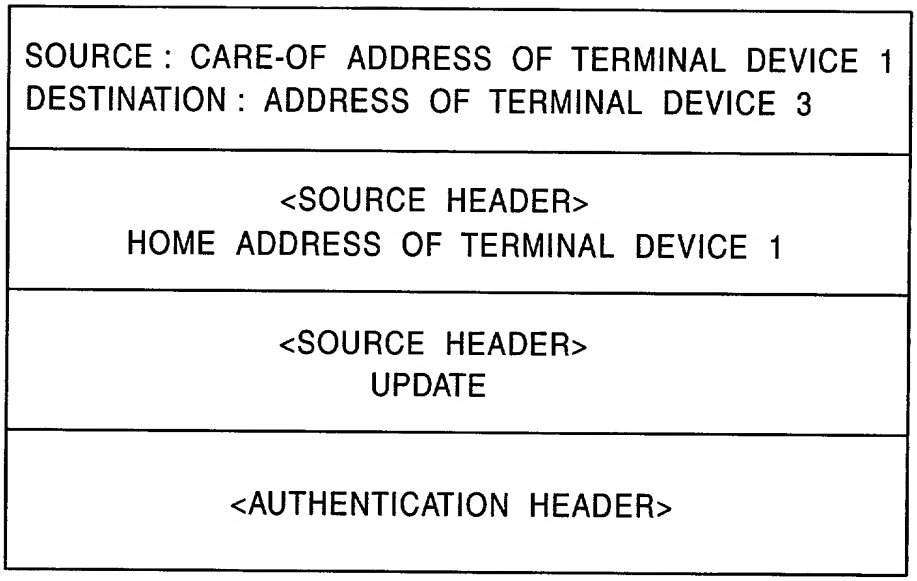

SOURCE : CARE-OF ADDRESS OF TERMINAL DEVICE 1
DESTINATION : ADDRESS OF TERMINAL DEVICE 3
<SOURCE HEADER>
HOME ADDRESS OF TERMINAL DEVICE 1
<SOURCE HEADER>
UPDATE
<AUTHENTICATION HEADER>

FIG. 15

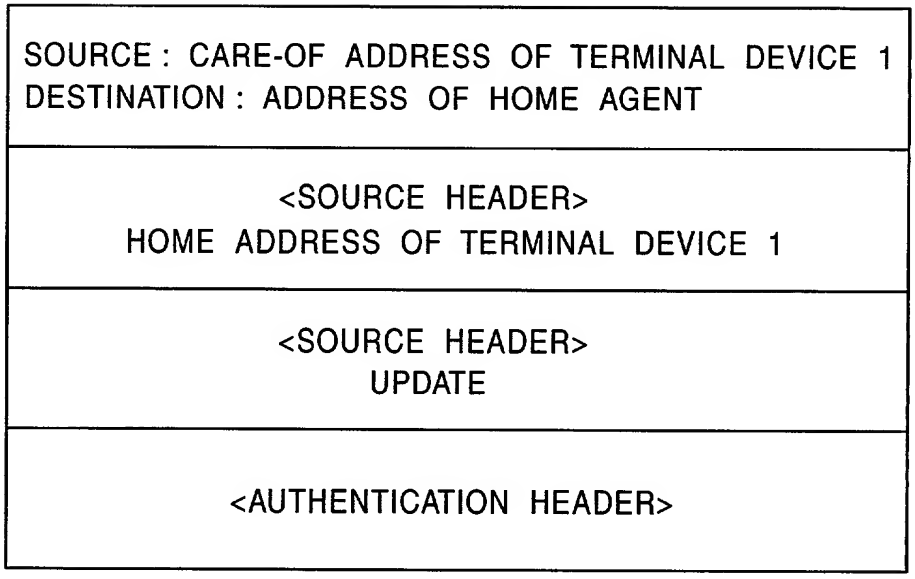

SOURCE : CARE-OF ADDRESS OF TERMINAL DEVICE 1
DESTINATION : ADDRESS OF HOME AGENT
<SOURCE HEADER>
HOME ADDRESS OF TERMINAL DEVICE 1
<SOURCE HEADER>
UPDATE
<AUTHENTICATION HEADER>

FIG. 16

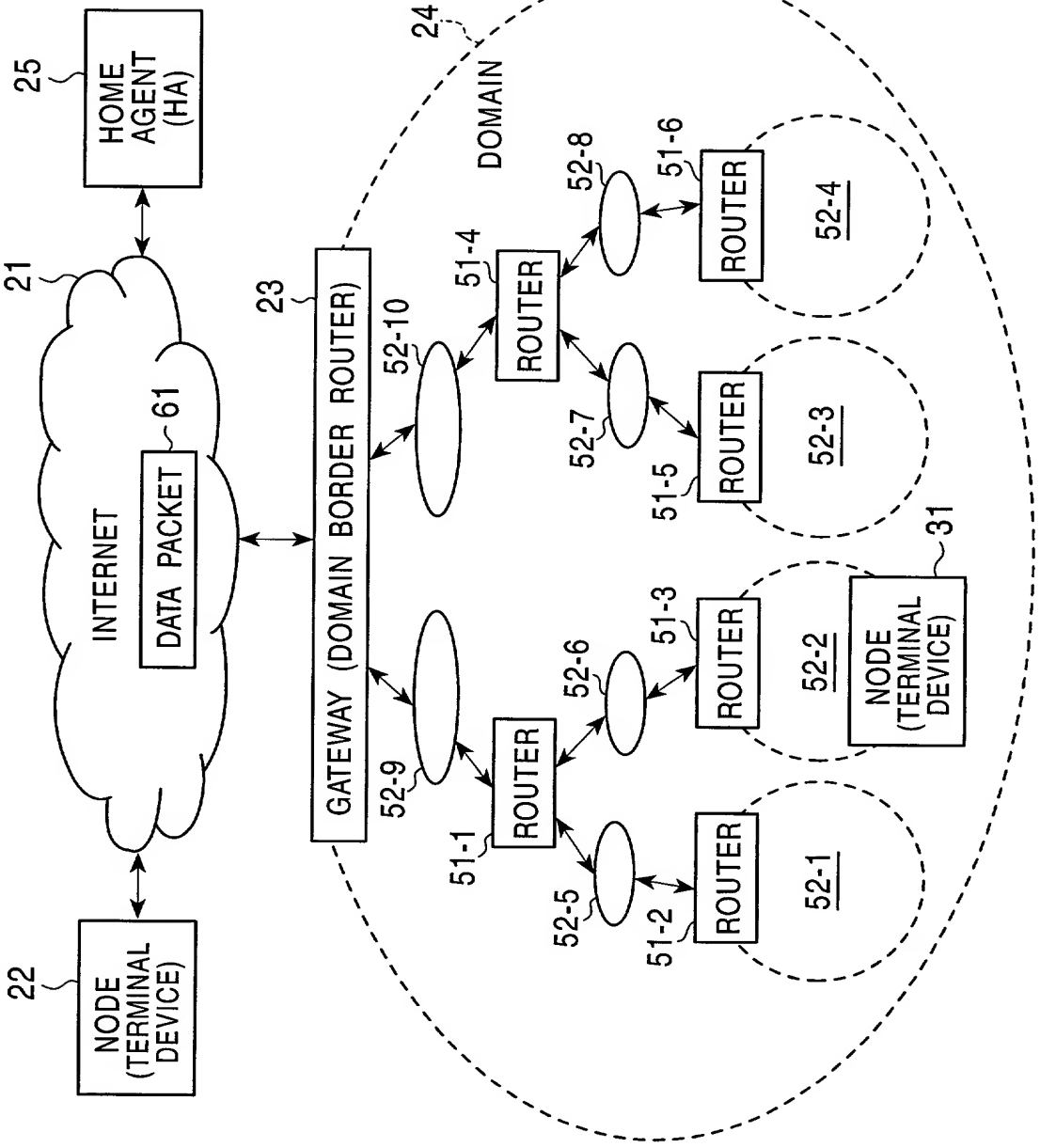

22
NODE (TERMINAL DEVICE)
21
INTERNET
61
DATA PACKET
25
HOME AGENT (HA)
23
GATEWAY (DOMAIN BORDER ROUTER)
24
DOMAIN
ROUTER
51-1
51-2
51-3
51-4
51-5
51-6
52-1
52-2
52-3
52-4
52-5
52-6
52-7
52-8
52-9
52-10
NODE (TERMINAL DEVICE)
31

FIG. 17

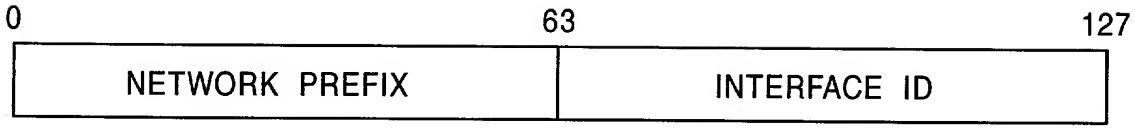

0
63
127
NETWORK PREFIX
INTERFACE ID

FIG. 18

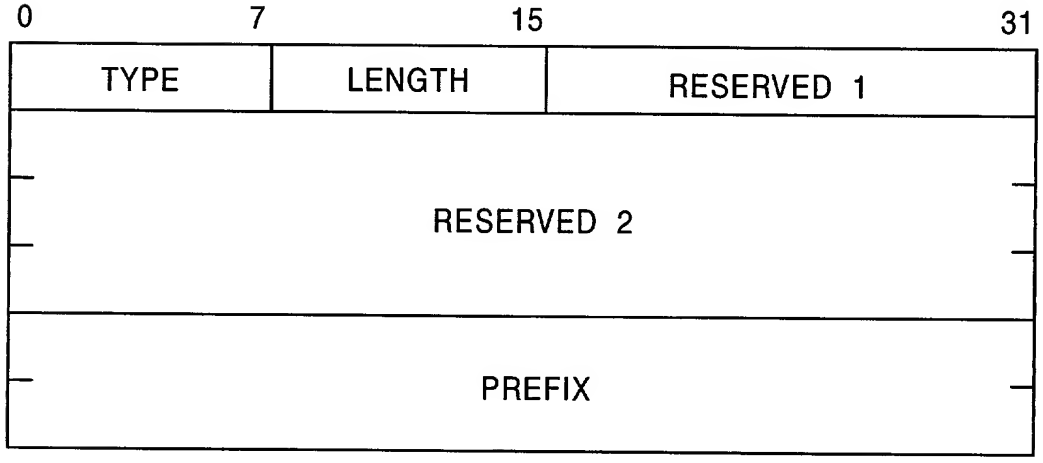

0
7
15
31
TYPE
LENGTH
RESERVED 1
RESERVED 2
PREFIX

FIG. 19

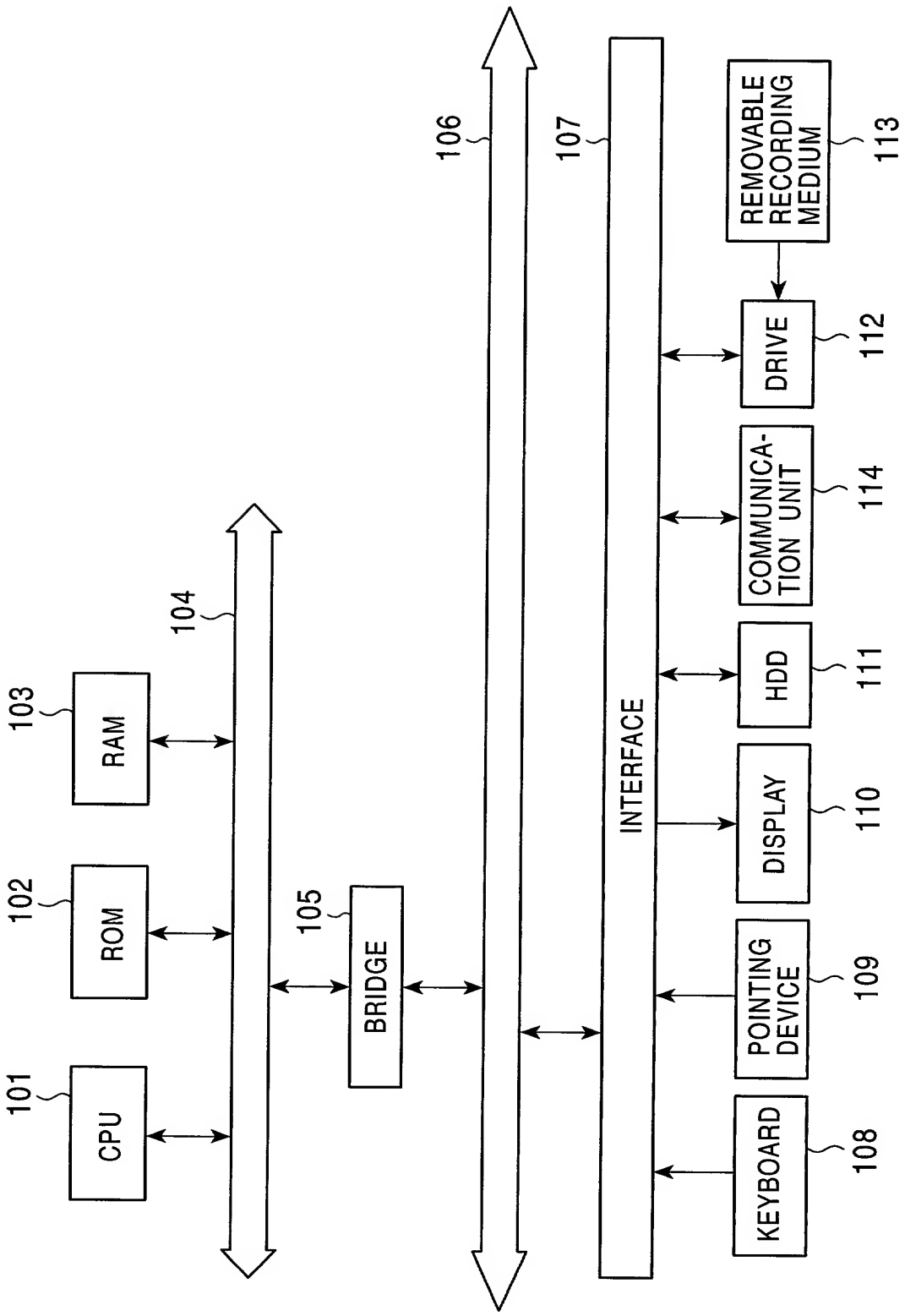

101
CPU
102
ROM
103
RAM
104
105
BRIDGE
106
107
INTERFACE
108
KEYBOARD
109
POINTING DEVICE
110
DISPLAY
111
HDD
112
DRIVE
113
REMOVABLE RECORDING MEDIUM
114
COMMUNICA-TION UNIT

FIG. 20

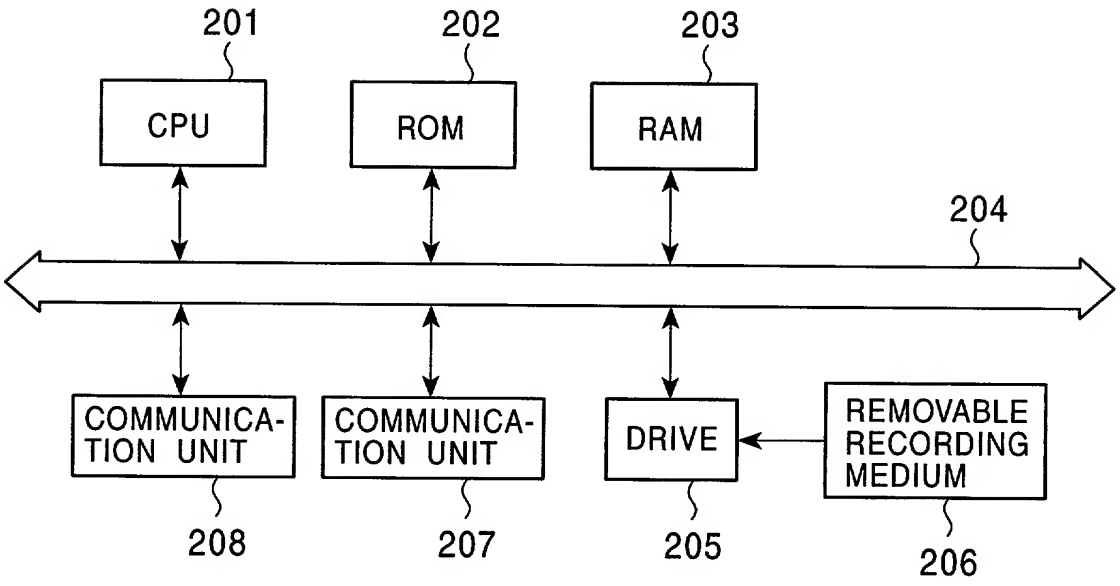

201
202
203
CPU
ROM
RAM
204
COMMUNICA-TION UNIT
COMMUNICA-TION UNIT
DRIVE
REMOVABLE RECORDING MEDIUM
208
207
205
206

FIG. 21

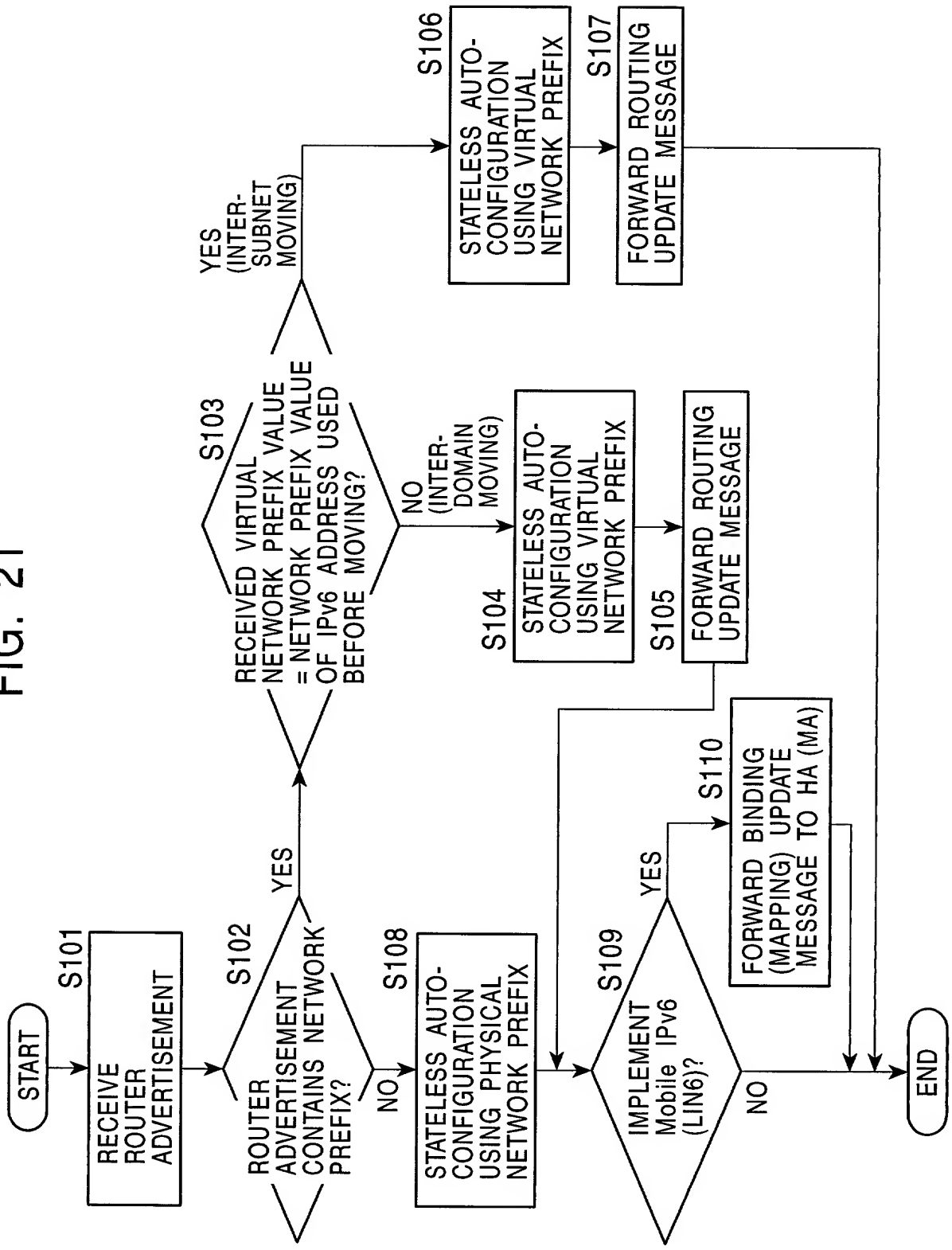

START
S101
RECEIVE ROUTER ADVERTISEMENT
S102
ROUTER ADVERTISEMENT CONTAINS NETWORK PREFIX?
YES
NO
S103
RECEIVED VIRTUAL NETWORK PREFIX VALUE = NETWORK PREFIX VALUE OF IPv6 ADDRESS USED BEFORE MOVING?
YES (INTER-SUBNET MOVING)
NO (INTER-DOMAIN MOVING)
S104
STATELESS AUTO-CONFIGURATION USING VIRTUAL NETWORK PREFIX
S105
FORWARD ROUTING UPDATE MESSAGE
S106
STATELESS AUTO-CONFIGURATION USING VIRTUAL NETWORK PREFIX
S107
FORWARD ROUTING UPDATE MESSAGE
S108
STATELESS AUTO-CONFIGURATION USING PHYSICAL NETWORK PREFIX
S109
IMPLEMENT Mobile IPv6 (LIN6)?
YES
NO
S110
FORWARD BINDING (MAPPING) UPDATE MESSAGE TO HA (MA)
END

FIG. 22

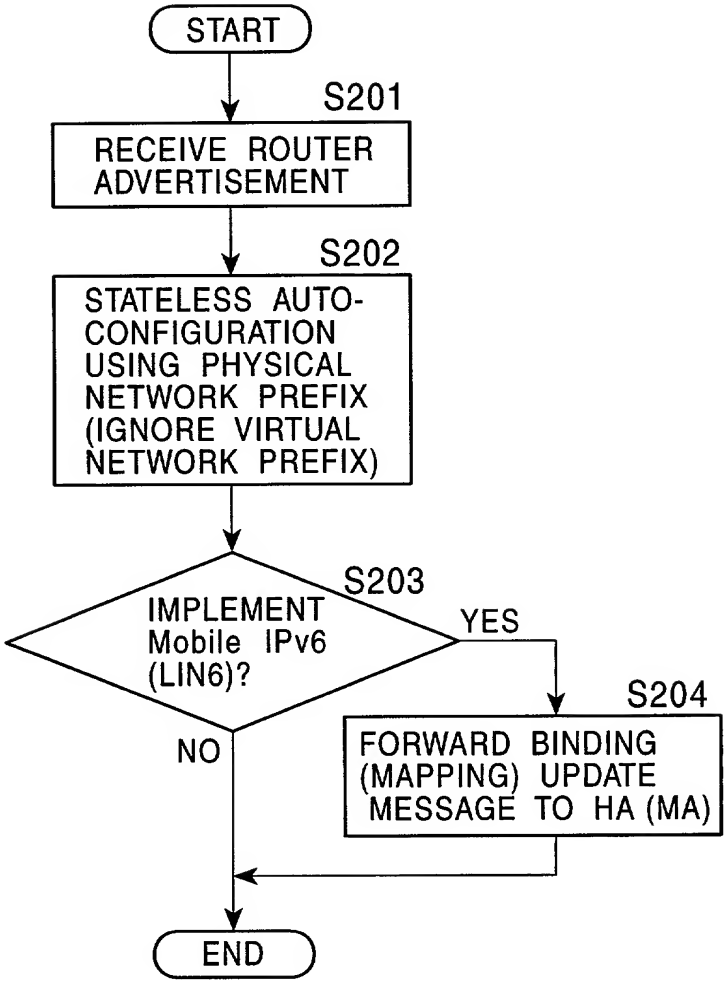

START
S201
RECEIVE ROUTER ADVERTISEMENT
S202
STATELESS AUTO-CONFIGURATION USING PHYSICAL NETWORK PREFIX (IGNORE VIRTUAL NETWORK PREFIX)
S203
IMPLEMENT Mobile IPv6 (LIN6)?
YES
NO
S204
FORWARD BINDING (MAPPING) UPDATE MESSAGE TO HA (MA)
END

FIG. 23

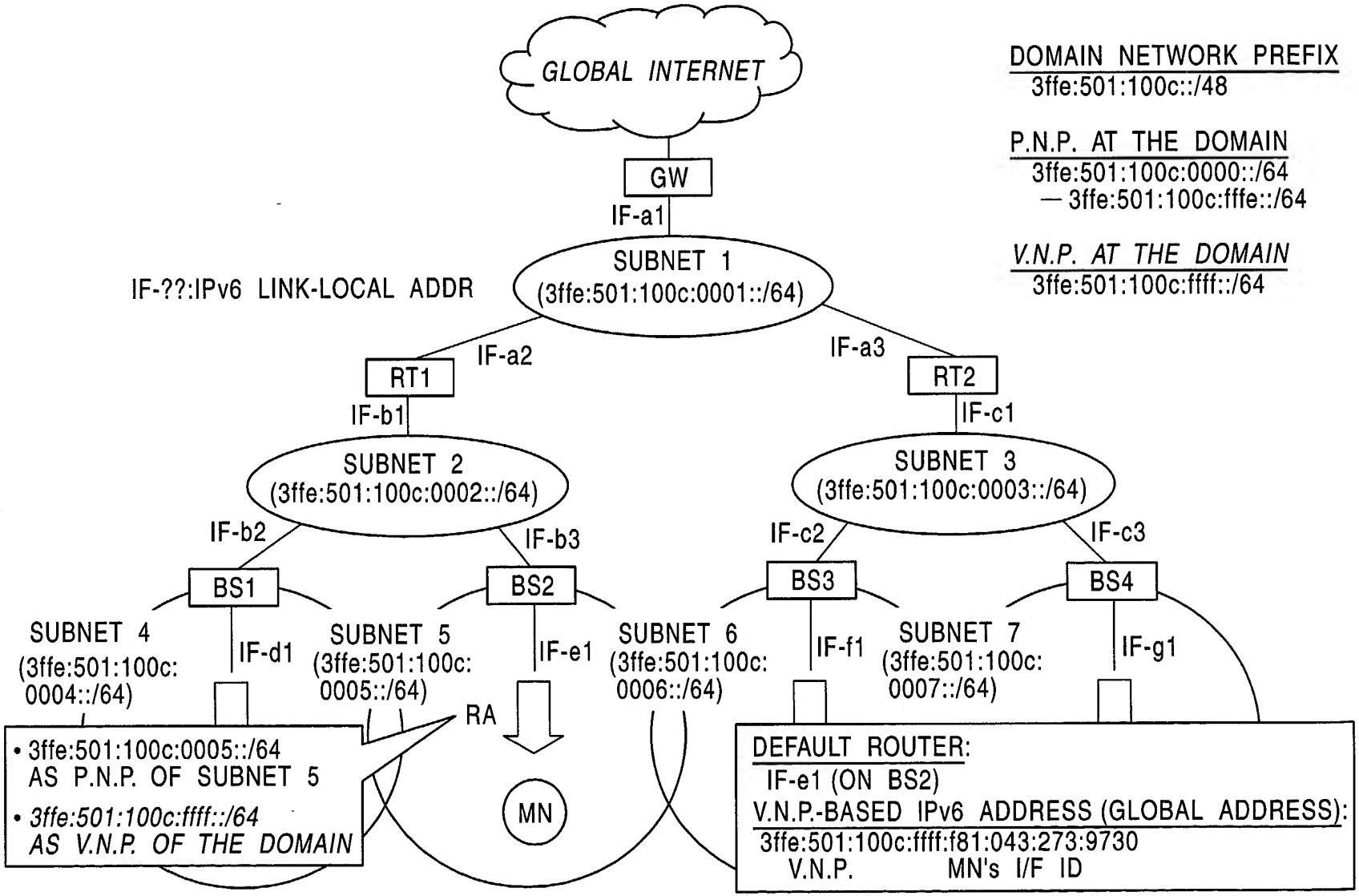

GLOBAL INTERNET
GW
IF-a1
SUBNET 1
(3ffe:501:100c:0001::/64)
IF-??:IPv6 LINK-LOCAL ADDR
IF-a2
IF-a3
RT1
RT2
IF-b1
IF-c1
SUBNET 2
(3ffe:501:100c:0002::/64)
SUBNET 3
(3ffe:501:100c:0003::/64)
IF-b2
IF-b3
IF-c2
IF-c3
BS1
BS2
BS3
BS4
SUBNET 4
(3ffe:501:100c:
0004::/64)
IF-d1
SUBNET 5
(3ffe:501:100c:
0005::/64)
IF-e1
SUBNET 6
(3ffe:501:100c:
0006::/64)
IF-f1
SUBNET 7
(3ffe:501:100c:
0007::/64)
IF-g1
RA
MN
• 3ffe:501:100c:0005::/64
AS P.N.P. OF SUBNET 5
• 3ffe:501:100c:ffff::/64
AS V.N.P. OF THE DOMAIN
DEFAULT ROUTER:
IF-e1 (ON BS2)
V.N.P.-BASED IPv6 ADDRESS (GLOBAL ADDRESS):
3ffe:501:100c:ffff:f81:043:273:9730
V.N.P. MN's I/F ID
DOMAIN NETWORK PREFIX
3ffe:501:100c::/48
P.N.P. AT THE DOMAIN
3ffe:501:100c:0000::/64
— 3ffe:501:100c:fffe::/64
V.N.P. AT THE DOMAIN
3ffe:501:100c:ffff::/64

FIG. 24

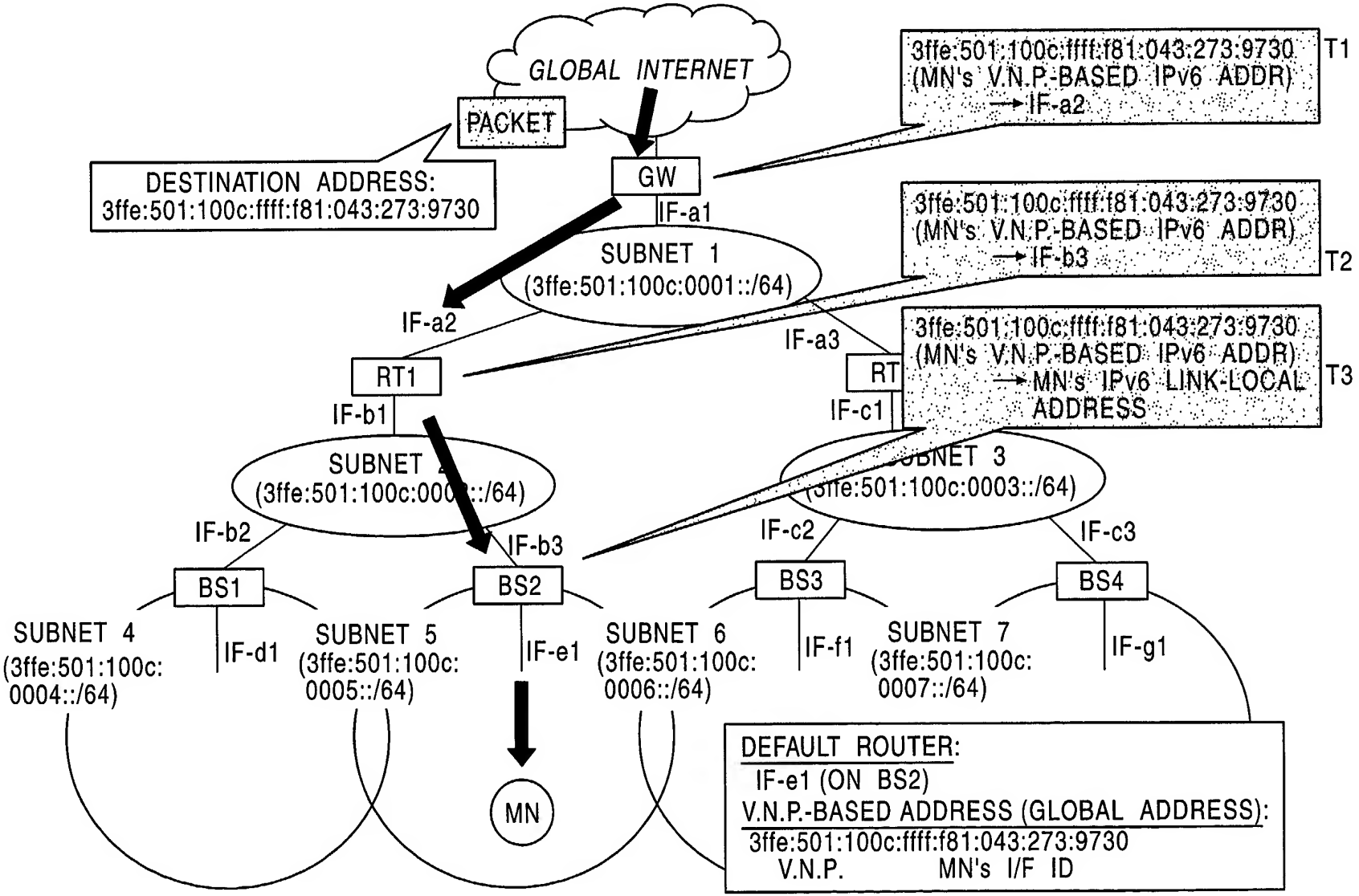

GLOBAL INTERNET
PACKET
DESTINATION ADDRESS:
3ffe:501:100c:ffff:f81:043:273:9730
GW
IF-a1
SUBNET 1
(3ffe:501:100c:0001::/64)
IF-a2
RT1
IF-b1
SUBNET 2
(3ffe:501:100c:0002::/64)
IF-b2
IF-b3
BS1
BS2
SUBNET 4
(3ffe:501:100c:
0004::/64)
IF-d1
SUBNET 5
(3ffe:501:100c:
0005::/64)
IF-e1
MN
3ffe:501:100c:ffff:f81:043:273:9730
(MN's V.N.P.-BASED IPv6 ADDR)
→IF-a2
T1
3ffe:501:100c:ffff:f81:043:273:9730
(MN's V.N.P.-BASED IPv6 ADDR)
→IF-b3
T2
IF-a3
RT
IF-c1
3ffe:501:100c:ffff:f81:043:273:9730
(MN's V.N.P.-BASED IPv6 ADDR)
→MN's IPv6 LINK-LOCAL ADDRESS
T3
SUBNET 3
(3ffe:501:100c:0003::/64)
IF-c2
IF-c3
BS3
BS4
SUBNET 6
(3ffe:501:100c:
0006::/64)
IF-f1
SUBNET 7
(3ffe:501:100c:
0007::/64)
IF-g1
DEFAULT ROUTER:
IF-e1 (ON BS2)
V.N.P.-BASED ADDRESS (GLOBAL ADDRESS):
3ffe:501:100c:ffff:f81:043:273:9730
V.N.P.
MN's I/F ID

FIG. 25

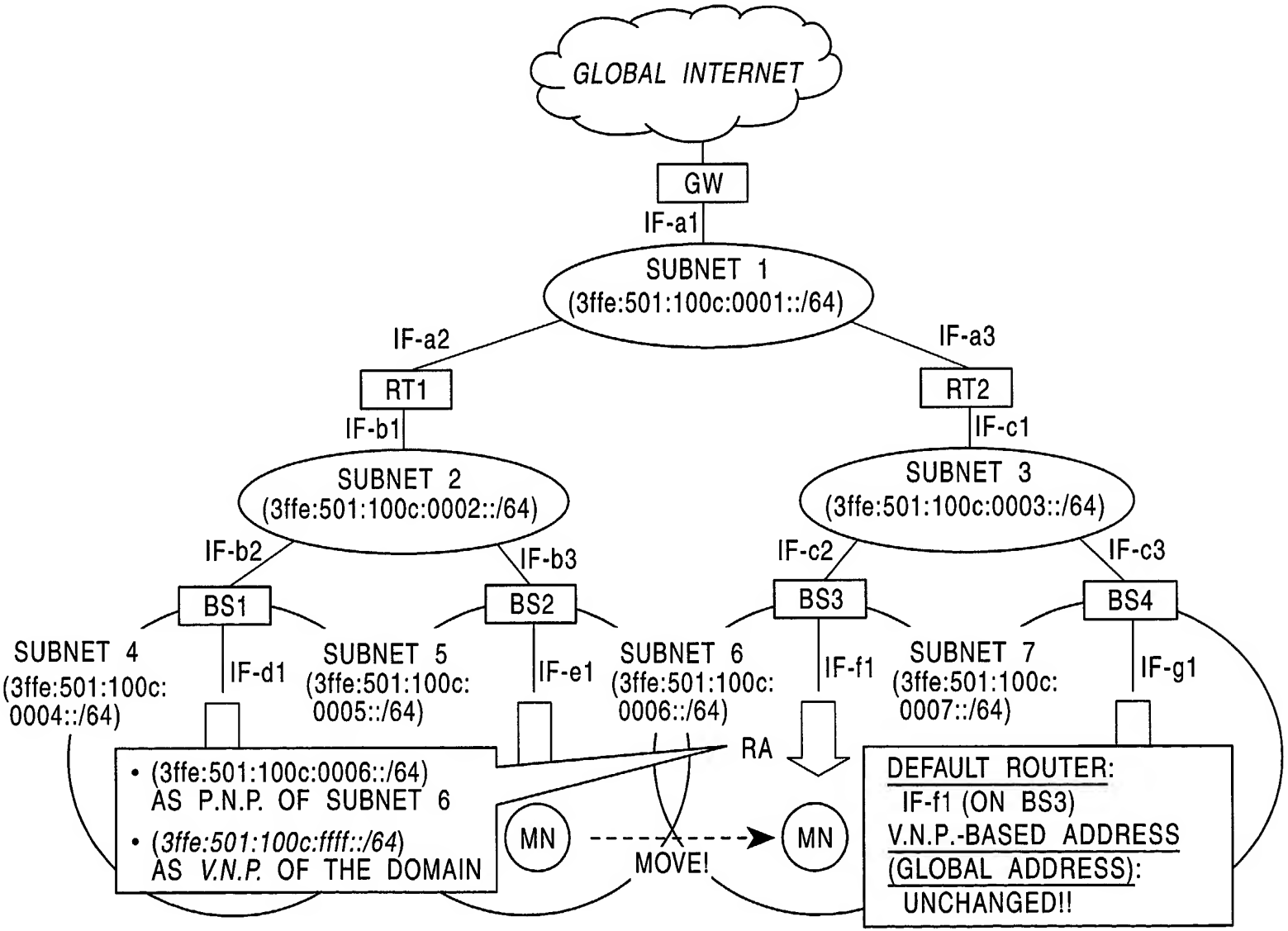
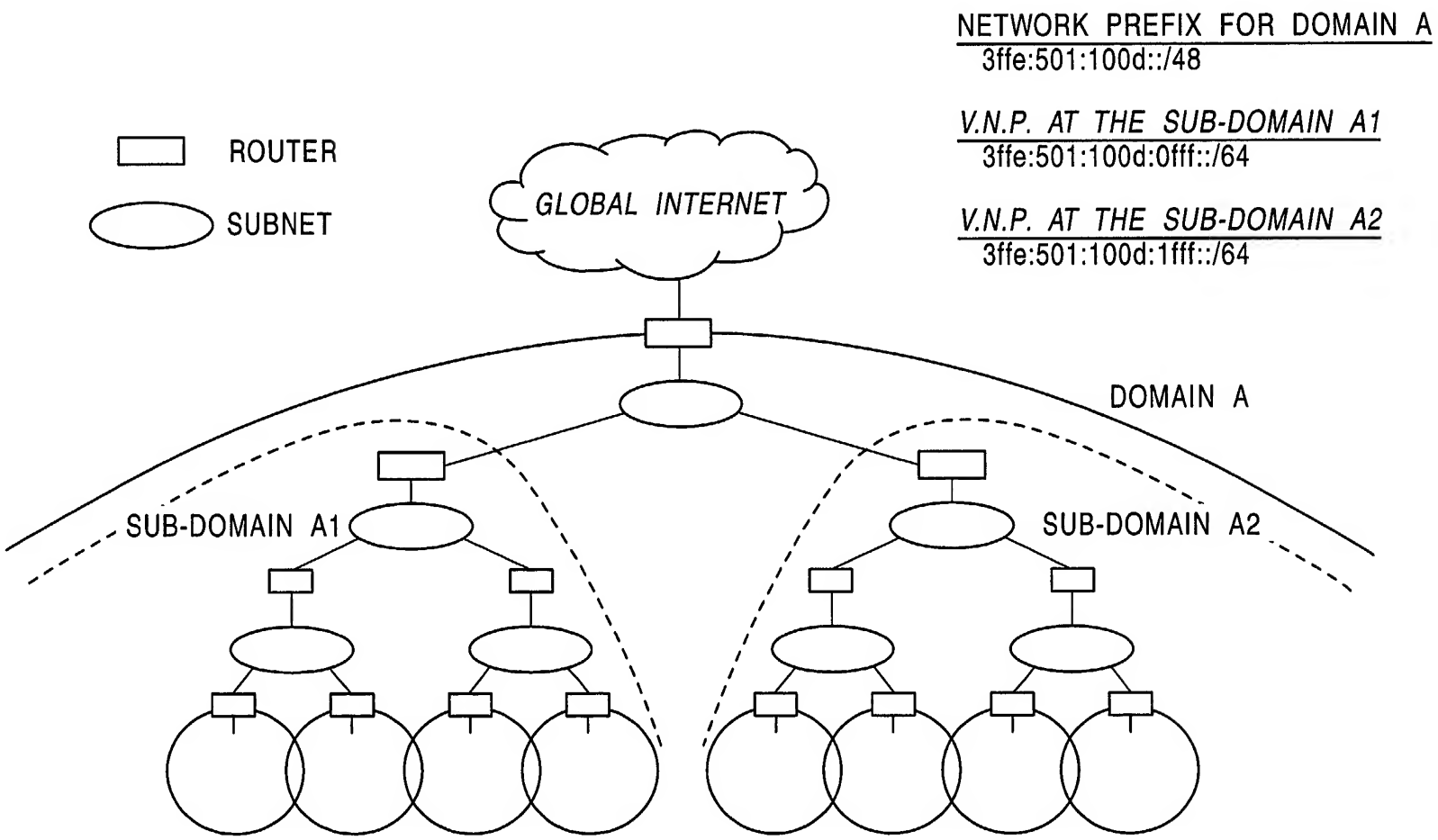

GLOBAL INTERNET
GW
IF-a1
SUBNET 1
(3ffe:501:100c:0001::/64)
IF-a2
IF-a3
RT1
RT2
IF-b1
IF-c1
SUBNET 2
(3ffe:501:100c:0002::/64)
SUBNET 3
(3ffe:501:100c:0003::/64)
IF-b2
IF-b3
IF-c2
IF-c3
BS1
BS2
BS3
BS4
SUBNET 4
(3ffe:501:100c:
0004::/64)
IF-d1
SUBNET 5
(3ffe:501:100c:
0005::/64)
IF-e1
SUBNET 6
(3ffe:501:100c:
0006::/64)
IF-f1
SUBNET 7
(3ffe:501:100c:
0007::/64)
IF-g1
RA
• (3ffe:501:100c:0006::/64)
AS P.N.P. OF SUBNET 6
• (3ffe:501:100c:ffff::/64)
AS V.N.P. OF THE DOMAIN
MN
MOVE!
MN
DEFAULT ROUTER:
IF-f1 (ON BS3)
V.N.P.-BASED ADDRESS
(GLOBAL ADDRESS):
UNCHANGED!!

FIG. 26


NETWORK PREFIX FOR DOMAIN A
3ffe:501:100d::/48
V.N.P. AT THE SUB-DOMAIN A1
3ffe:501:100d:0fff::/64
V.N.P. AT THE SUB-DOMAIN A2
3ffe:501:100d:1fff::/64
ROUTER
SUBNET
GLOBAL INTERNET
DOMAIN A
SUB-DOMAIN A1
SUB-DOMAIN A2